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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/627,016

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Joseph C. Zuercher

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3696

7590

04/27/2005

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EXAMINER

BENSON, WALTER

ART UNIT

PAPER NUMBER

2858

DATE MAILED: 04/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/627,016

Applicant(s)

ZUERCHER ET AL

Examiner

Walter Benson

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 9 and 10 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 16-31 is/are allowed.
- 6) ☒ Claim(s) 1-4, 11 and 15 is/are rejected.
- 7) ☒ Claim(s) 5-8 and 12-14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Amendment A, received on 2/24/05, has been entered into record.

Election/Restrictions

2. Applicant's election with traverse of claims 9 and 10 in the reply filed on 2/24/05 is acknowledged. The traversal is on the ground(s) that claim 1 is a generic claim and all claims, which depend from generic claims, should be considered. This is not found persuasive because generic claim in a species requirement does not require examination of all claims dependent upon the generic claim. Further remarks provided for claim 10 fail to clearly provide for means for remotely communicating the value of the voltage at the load to the means for determining the value of arc fault energy. Only the claims directed to the elected species will be examined

The requirement is still deemed proper and is therefore made FINAL

3. Claims 1-8, and 11-31 are now pending.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-4, 11 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scott (US Patent No. 5,986,860 and Scott hereinafter) in view of Itimura et al. (US Patent No. 6,703,842 B2 and Itimura hereinafter).

6. As to claims 1-4, 11, and 15, Scott discloses an apparatus for determining arc fault energy [col. 9, lines 66-67 and col. 10, lines 1-3] in real time for a power circuit between a power source and a load substantially as claimed, the apparatus comprising:

means for determining a value of voltage at the load [claims 1, 11] (col. 6, lines 64-67);

means for determining a value of current flowing in the power circuit to or from the power source [claims 1, 11] (col. 6, lines 31-36);

where the means for determining a value of voltage at the power source includes a predetermined value of voltage at said power source [claim 3] (col. 5, lines 22-26);

determining a value at the power source [claim 15] (col. 6, lines 64-67);

determining a value of series arc power from said value of current times a difference of the value of voltage at the power source less the value of voltage at the load [claim 15] (col. 10, lines 8-12).

Scott did not expressly disclose:

means for determining a value of the arc fault energy from said value of voltage and the value of current [claims 1, 11];

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where the means for determining a value of the arc fault energy includes means for determining a value of voltage at the power source [claim 2];

where the means for determining a value of the arc fault energy includes means for determining a value of parallel arc power from the value of voltage at the load times the value of current, and means for determining the value of the arc fault energy as a function of an integral of the parallel arc power [claim 4];

determining the value of the arc fault energy as a function of an integral of the series arc power [claim 15].

Nonetheless, these features are well known in the art and would have been an obvious modification of the system disclosed by Scott, as evidenced by Itimura.

Itimura discloses an apparatus and method for arc detection having:

means for determining a value of the arc fault energy from the value of voltage and the value of current [claims 1, 11] (col. 4, lines 37-46 and col. 12, lines 65-67)

where the means for determining a value of the arc fault energy includes means for determining a value of voltage at the power source [claim 2] (col. 12, lines 61-64) to compare the power related parameters.

where the means for determining a value of the arc fault energy includes means for determining a value of parallel arc power [col. 6, lines 10-15] from the value of voltage at the load times the value of current, and means for determining the value of the arc fault energy as a function of an integral of the parallel arc power [claim 4] (col. 12, lines 61-67) to determine the total energy;

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determining the value of the arc fault energy as a function of an integral of the series arc power [claim 15] (col. 12, lines 61-64).

Given the teaching Itimura a person having ordinary skill in the art at the time of the invention would have readily recognized the desirability and advantages of modifying Scott by employing the well known or conventional features of measuring arc energy, such as disclosed by Itimura, in order to efficiently accumulate arcing energy over a plurality of arcing events and for the purposes discussed above.

Allowable Subject Matter

7. Claims 5-8 and 12-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art of record fail to teach in combination as claimed an apparatus and method for determining the value of the arc fault energy as a function of an integral of the parallel arc power including means for integrating a difference of the parallel arc power less a decay rate.

8. Claims 16-31 are allowed. The prior art of record fail to teach in combination as claimed an apparatus and method for determining arc fault energy having means for determining the location from the value of voltage from the power source, the value of current, the value of voltage at the load, and a wire resistance per unit length or a wire conductance per unit length of the power circuit.

Response to Arguments

9. Applicant's arguments with respect to claims 1 and 11 have been considered but are moot in view of the new ground(s) of rejection.

10. In the remarks the applicant argued in substance that:

(1) Buda does not disclose means for determining a value of arc fault energy from the value of voltage at the load and value of current.

11. Examiner respectfully traverse applicants remarks:

As to point (1), see paragraphs above Itimura (US patent No. 6,703,842 B2) has been applied as prior art in lieu of Buda.

Prior Art Made of Record

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure

A. Scott. (US Patent No. 6,782,329 B2) discloses a method and apparatus for adaptive arc fault detection.


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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter Benson whose telephone number is (571) 272-2227. The examiner can normally be reached on Mon to Fri 6:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on (571) 272-2180. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Walter Benson
Patent Examiner

April 22 2005